ECONOMIC ANALYSIS
COOPERATIVE GYPSY MOTH PROJECT
FOR
INDIANA
2011

The benefit/cost ratio for this project is estimated to be **1.8 : 1.0**

Assumptions

Economic analysis of the Slow-The-Spread (STS) strategy has been done by Leuschner 1991 and Leuschner et al. 1996. In the 1991 analysis, impacts were assumed on the first year of infestation only. In the 1996 analysis, impacts were assumed during every year of the infestation. Jeff Mayo converted the output of the Leuschner analysis so benefits are stated in "dollars per mile of Transition Line". Thus, calculations of benefits can be made for specific STS projects. For each mile that the rate of spread is reduced, the annual value of benefits that accrue are $3,775 (1991 analysis) or $29,315 (1996 analysis) per mile along the Transition Line (communication with Donna Leonard - STS Program Coordinator). The Transition Line is estimated to be the 10-moth line calculated by the STS Program. For this project in Indiana, assumptions are that the rate of spread will be reduced by 60% (from 12.1 miles/year to 4.8 miles/year) (communication with Donna Leonard – STS Program Coordinator), and impacts will be for the first year of infestation only (a conservative estimate). Indiana's average rate of spread is 5.3 miles per year for the last 4 years (Table 1). During this period, the rate of spread has been only a half a mile per year short of the suggested goal of 4.8 miles per year. Therefore, the 60% reduction is a reasonable estimate to use for the analysis of the STS project in Indiana.

Benefits

- $18,120 per mile of Transition Line ($3,775/mile of reduced spread rate x 4.8 miles of reduced spread rate)
- 150 miles of Transition Line based on the 10-moth line.

➢ $2,718,000 of total benefits

Table 1. Annual rate of spread based on the 10-moth line.

Year	Rate of spread	
	km/yr	mi/yr
2007	11.6	7.2
2008	17.8	11.1
2009	1.9	1.2
2010	2.5	1.6
Average	8.5	5.3

Source: STS Decision Support System
http://da.ento.vt.edu/spread/spread6.html

Costs

- $417,460 = Btk treatments (8,896 acres x 2 applications and 3,442 acres x 1 application @ $19.66/acre/application)
- $809,565 = Mating disruption treatments (105,002 acres x 1 application (6 g) $7.71/acre/application)
- $27,135 = Mating disruption treatments (1,856 acres x 1 application (15 g) $14.62/acre/application)
- $250,832 = administrative costs (20.0% of treatment costs)

➢ $1,504,992 = total costs

Benefit/Cost Ratio

2,718,000 : 1,504,992 = 1.8 : 1.0

References:
Leuschner, William A. 1991. Gypsy moth containment program economic assessment. Final Report. USDA Forest Service, Northeastern Area. 114 pp.

Leuschner, William A., John A, Young, and F. William Ravlin. 1996. Potential benefits of slowing the gypsy moth's spread. Southern Journal of Applied Forestry 20:65-73.